

WHAT IS CLAIMED IS

5

1. An optical pickup apparatus for accessing an optical recording medium, comprising:

a light source unit emitting one of a plurality of laser beams having different wavelengths, the light source unit including a first 10 laser diode emitting a laser beam having a first wavelength and a second laser diode emitting a laser beam having a second wavelength;

15 an optical system focusing said one of the plurality of laser beams, emitted by the light source unit, onto a recording surface of the recording medium;

a photodetector unit receiving reflection beams, which are reflected from the recording medium in response to said one of the plurality of laser beams focused by the optical system, to generate detection signals from the received reflection beams; and

20 a holographic unit having a first hologram suited to the first laser diode and a second hologram suited to the second laser diode, the first hologram provided to diffract a reflection beam of the laser beam of the first laser diode to the photodetector, the second hologram provided to diffract a reflection beam of the laser beam of 25 the second laser diode to the photodetector.

2. The optical pickup apparatus according to claim 1 wherein
the photodetector is provided to receive the diffracted beams from
each of the first hologram and the second hologram.

5

3. The optical pickup apparatus according to claim 1 wherein
one of the first and second holograms in the holographic unit
10 includes a first tracking detection region suited to the reflection
beam of the laser beam of the first laser diode, and a second tracking
detection region suited to the reflection beam of the laser beam of
the second diode, and a surface area of the second tracking detection
region being larger than a surface area of the first tracking detection
15 region.

20 4. The optical pickup apparatus according to claim 1 wherein
the first hologram and the second hologram of the holographic unit
are provided in a single optical module.

25

5. The optical pickup apparatus according to claim 4 wherein
the first hologram and the second hologram are arranged with a
spacing between opposing surfaces of the first and second holograms.

5

6. The optical pickup apparatus according to claim 1 wherein
the first hologram and the second hologram of the holographic unit
10 are respectively configured into a first polarizing hologram and a
second polarizing hologram.

15

7. The optical pickup apparatus according to claim 6 wherein a
focusing detection region of each of the first and second polarizing
holograms has an optimum grating depth to provide a predetermined
diffraction efficiency for one of the laser beam wavelengths of the
20 first and second laser diodes.

25

8. The optical pickup apparatus according to claim 6 wherein

each of the first and second polarizing holograms contains an obliquely deposited film.

5

9. The optical pickup apparatus according to claim 6 wherein each of the first and second polarizing holograms contains an oriented organic film.

10

10. The optical pickup apparatus according to claim 6 further comprising a common quarter-wave plate provided between the photographic unit and the optical system, and the common quarter-wave plate and the photographic unit being integrally provided in a single optical module.

20

11. The optical pickup apparatus according to claim 10, wherein the common quarter-wave plate is configured to have a tolerance of phase difference of the reflection beams for the first

and second laser diodes in a range of 90 ± 19 degrees.

5

12. The optical pickup apparatus according to claim 1 further comprising a coupling mirror reflecting each of the laser beams of the first and second laser diodes to the optical system.

10

13. The optical pickup apparatus according to claim 1 wherein the first laser diode and the second laser diode are respectively provided on a first LD chip having a decentered emission point and a second LD chip having a decentered emission point, the first and second LD chips being arranged in parallel such that a distance between the decentered emission points of the LD chips is smaller than a distance between centers of the LD chips.

133

15
20

14. An optical disk drive including an optical pickup apparatus, said optical pickup apparatus comprising:

a light source unit emitting one of a plurality of laser beams having different wavelengths, the light source unit including a first laser diode emitting a laser beam having a first wavelength and a second laser diode emitting a laser beam having a second

5 wavelength;

an optical system focusing said one of the plurality of laser beams, emitted by the light source unit, onto a recording surface of an optical recording medium;

10 a photodetector unit receiving reflection beams, which are reflected from the recording medium in response to said one of the plurality of laser beams focused by the optical system, to generate detection signals from the received reflection beams; and

15 a holographic unit having a first hologram suited to the first laser diode and a second hologram suited to the second laser diode, the first hologram provided to diffract a reflection beam of the laser beam of the first laser diode to the photodetector, the second hologram provided to diffract a reflection beam of the laser beam of the second laser diode to the photodetector.

20

15. An optical pickup apparatus for accessing an optical recording medium, comprising:

25 a light source unit emitting one of a plurality of laser beams

having different wavelengths, the light source unit including a first laser diode emitting a laser beam having a first wavelength and a second laser diode emitting a laser beam having a second wavelength;

5 an optical system focusing said one of the plurality of laser beams, emitted by the light source unit, onto a recording surface of the recording medium;

10 a photodetector unit receiving reflection beams, which are reflected from the recording medium in response to said one of the plurality of laser beams focused by the optical system, to generate detection signals from the received reflection beams; and

15 a holographic unit having a first holographic pattern suited to the first laser diode and a second holographic pattern suited to the second laser diode, the first hologram provided to partially diffract a reflection beam of the laser beam of the first laser diode to the photodetector, and the first laser reflection beam partially passing through the first holographic pattern to the photodetector, the second hologram provided to partially diffract a reflection beam of the laser beam of the second laser diode to the photodetector, and the second laser reflection beam partially passing through the second holographic pattern to the photodetector.

16. The optical pickup apparatus according to claim 15
wherein the photodetector is provided to receive the diffracted
beams from each of the first holographic pattern and the second
holographic pattern of the holographic unit.

5

17. The optical pickup apparatus according to claim 15
10 wherein at least the first laser diode and the second laser diode of
the light source unit are provided in a single optical module.

15

18. The optical pickup apparatus according to claim 15
wherein at least the first laser diode and the second laser diode of
the light source unit and the photodetector unit are provided in a
single optical module.

20

19. The optical pickup apparatus according to claim 15
25 wherein the optical system includes a collimator lens converting the

laser beam, received from each of the first laser diode and the second laser diode, into a collimated laser beam, and a beam splitter transmitting the collimated laser beam to the recording medium and reflecting the reflection beams from the recording medium to the photodetector unit.

5

10 20. The optical pickup apparatus according to claim 15 wherein the holographic unit is configured into a polarizing hologram having the first holographic pattern and the second holographic pattern.

15

21. The optical pickup apparatus according to claim 20 wherein the each of the first holographic pattern and the second 20 holographic pattern of the polarizing hologram contains an obliquely deposited film.

25

22. The optical pickup apparatus according to claim 20 further comprising a quarter-wave plate provided between the holographic unit and the optical system, and the quarter-wave plate being configured to have a tolerance of phase difference of the reflection
5 beams for the first and second laser diodes in a range of 90 ± 19 degrees.

10

15

20

25